

**REMARKS****I. General**

Claims 1-45 are pending in the present application, with each pending claim standing rejected under 35 U.S.C. § 103. Applicant respectfully traverses the rejections of record.

**II. The 35 U.S.C. § 103 Rejections**

Claims 1-10, 13-32, and 35-43 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Searle et al., European patent application publication number 0 639035 A1 (hereinafter *Searle*), in view of Mahmoudi et al., “Adaptive Sector Control in a CDMA System Using Butler Matrix” (hereinafter *Mahmoudi*), and Tsoulos et al., “Performance Enhancement of DC-CDMA Microcellular Networks with Adaptive Antennas” (hereinafter *Tsoulos*). Claims 11, 12, 33, 34, 44, and 45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Searle* in view of *Mahmoudi* and *Tsoulos* and further in view of Dent, United States patent number 5,909,460 (hereinafter *Dent*).

To establish a *prima facie* case of obviousness, three basic criteria must be met, see M.P.E.P. § 2143. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Without conceding the second criteria, Applicant respectfully asserts that the references lack proper motivation to combine in addition to lacking all the claim limitations.

**A. The Independent Claims**

Independent claim 1 recites, with respect to providing modulation transmitter output signals to transmit signals, “each of said plurality of independently operable switching means is assigned to a particular channel of said plurality of channels . . . .” Similarly, independent claim 20 recites, with respect to providing receive signals to demodulation inputs, “each of said plurality of independently operable switching circuits is assigned to a different channel of said plurality of CDMA channels . . . .” Claim 35 recites, with respect to providing receive signals to demodulation receiver inputs, “said selectively providing step utilizes a plurality of

independently operable input switching circuits each assigned to a different one of said CDMA channels,” and with respect to providing output signals to transmit signals, “said selectively providing step utilizes a plurality of independently operable output switching circuits each assigned to a different one of said CDMA channels . . . .” It is respectfully asserted that the foregoing aspects of the claims are not addressed by the rejection of record nor are they present in the applied art.

The rejection of record is silent with respect to the foregoing aspects of the claims and, therefore, does not establish a rejection comporting with Office policy. Specifically, when making a rejection under 35 U.S.C. § 103(a), M.P.E.P. § 706.02(j) directs the Examiner to set forth in the Office Action: (1) the relevant teachings of the prior art relied upon; (2) the difference or differences in the claim over the applied references; (3) the proposed modification of the applied references necessary to arrive at the claimed subject matter; and (4) an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification. M.P.E.P. § 706.02(j) further points out that “[i]t is important for an examiner to properly communicate the basis for a rejection so that the issues can be identified early and the applicant can be given fair opportunity to reply.” In failing to address the above identified aspects of the claims, the Office Action has failed to satisfy the initial burden of establishing a proper rejection in accordance with the directives of the M.P.E.P.

Moreover, Applicant respectfully asserts that the disclosure of the applied art is insufficient to meet the above identified aspects of the claims. The Office Action does not identify the particular portion of the disclosure of *Searle* relied upon in meeting the recited “means for selectively providing select ones of said modulation transmitter output signal components to one or more of said transmit signals” (claim 1), “a switch bank for selectively providing signal components of select ones of said plurality of receive signals to one or more of said plurality of demodulation inputs” (claim 20), and “selectively providing signal components of ones of said receive signals to ones of said demodulation receiver inputs [and] selectively providing signal components of said at least one output signal to select ones of said transmit signals” (claim 35). However, the Office Action asserts that Figures 6(a) (masthead electronics) and 6(b) (cabin electronics) of *Searle* are given a very broad but reasonable interpretation by the Examiner in meeting the claims, see the Office Action at page 2.

The switches discussed with respect to the transmit path of *Searle* appear to be associated with antenna beams, see column 7, lines 30-51, rather than different ones of the channels. The switches discussed with respect to the receive path of *Searle* appear to be associated with main or diverse inputs of the diversity receivers, see column 8, lines 20-23, rather than different ones of the channels. Accordingly, the disclosure of *Searle* does not appear to teach or suggest “each of said plurality of independently operable switching means is assigned to a particular channel of said plurality of channels” (claim 1), “each of said plurality of independently operable switching circuits is assigned to a different channel of said plurality of CDMA channels” (claim 20), or “said selectively providing step utilizes a plurality of independently operable input switching circuits each assigned to a different one of said CDMA channels [and] said selectively providing step utilizes a plurality of independently operable output switching circuits each assigned to a different one of said CDMA channels” (claim 35).

Additionally, the claims recite “selectively providing select ones of said modulation transmitter output signal components” (claim 1) and “providing a plurality of transmit signals for radiation of at least one output signal from a modulation transmitter [and] selectively providing signal components of said at least one output signal to select ones of said transmit signals” (claim 35). Accordingly, these claims recite baseband switching or selection of signals, see e.g., Figure 1 of the present application. *Searle* expressly teaches RF switching, see column 6, lines 17-18. Moreover, there is nothing in the disclosures of either *Mahmoudi* or *Tsoulos* to teach or suggest baseband switching or selection of signals.

Further emphasizing the above distinctions, claims 20 and 35 recite independently operable switching circuits assigned to different CDMA channels. Accordingly, these claims recite limitations which provide beam forming control in the code domain. There is nothing in the disclosure of *Searle* to teach or suggest beam forming control achieved in the code domain. In particular, the disclosure of *Searle* appears to be completely silent with respect to the use of CDMA channels and, furthermore, does not appear to provide a configuration which is adapted, or adaptable without substantial unsuggested modification, to provide beam forming in the code domain in accordance with the limitations set forth in claims 20 and 35.

The Office Action relies upon *Mahmoudi* to teach a CDMA system wherein a Butler matrix is used to adaptively change the sizes and positions of sectors. However, the

disclosure of *Mahmoudi* does not provide a system wherein switching circuits are assigned on a CDMA channel basis. Indeed, *Mahmoudi* is silent with respect to the particular switching configuration used, although from the portion of the system shown in Figure 2 thereof, it appears that *Mahmoudi* provides switching on a sector (multi-channel) basis.

Although providing no detail with respect to the system implementation, and therefore no information with respect to switching circuits used thereby, *Tsoulos* appears to provide a purely adaptive array configuration, see column 1 of page 1087 at lines 17-24. Accordingly, the disclosure of *Tsoulos* is silent with respect to any switching configuration.

As set forth above, Applicant's review of the secondary references *Mahmoudi* and *Tsoulos* does not reveal any disclosure sufficient to redress the above identified deficiencies in the disclosure of *Searle*. Accordingly, Applicant asserts that the applied art cannot be read to meet the claims.

Additionally, Applicant respectfully asserts that one of ordinary skill in the art would not have been led to modify *Searle* in view of *Mahmoudi* and *Tsoulos* as proffered by the Examiner. Although the Office Action asserts that *Mahmoudi* cures a deficiency in the disclosure of *Searle* by disclosing a Butler matrix and attendant attributes, there is no showing of the requisite motivation as to why one of ordinary skill in the art would have been led to modify *Searle* in view of *Mahmoudi*, see the Office Action at page 3. Similarly, although the Office Action asserts that *Tsoulos* cures a deficiency in *Searle* by disclosing an antenna array and attendant attributes, there is no showing of the requisite motivation as to why one of ordinary skill in the art would have been led to modify *Searle* in view of *Tsoulos*, *id.*

The statements regarding *Searle* in view of *Mahmoudi* and *Tsoulos* are merely an assertion that the references can be combined. It is well settled that the fact that references can be combined or modified is not sufficient to establish a *prima facie* case of obviousness, M.P.E.P. § 2143.01. Thus, the 35 U.S.C. § 103 rejection of record is improper.

Moreover, Applicant respectfully asserts that the disclosures of *Searle* and *Mahmoudi* teach away from the proffered combination, thereby rendering the combination non-obvious, and modification of *Searle* in view of *Mahmoudi* would unpermissably change the principle

of operation of the system of *Searle*, see M.P.E.P. §§ 2143.01 and 2145. *Searle* teaches that “there are no sectors” in the system thereof, see column 10, lines 46-47. In contrast, *Mahmoudi* teaches that “while keeping the number of sectors fixed at 3, we may adaptively change the sectors by combining appropriate narrow beams,” see column 2 at page 1355, lines 28-31. The proffered modification of *Searle* in view of *Mahmoudi* goes against the express teachings of each disclosure in addition to requiring the non-sectorized system of *Searle* to adopt the 3 sectored system of *Mahmoudi*. Accordingly, Applicant respectfully asserts that the proffered combination is improperly the basis of a rejection under 35 U.S.C. § 103.

With respect to the proffered combination of *Searle* in view of *Tsoulos*, the Office Action provides no detail on how these two fundamentally different systems might be disclosed. *Searle* teaches a beam switching implementation, see column 6, lines 14-18. In contrast, *Tsoulos* teaches a purely adaptive array approach, see column 1 of page 1088 at lines 6-16. There is nothing in either of these disclosures to suggest how these systems might be combined, nor has the Examiner shown otherwise.

## **B. The Dependent Claims**

### **1. The Rejection Based Upon *Searle* in View of *Mahmoudi* and *Tsoulos***

Dependent claims 2-19, 21-34, and 36-45 each depend directly or indirectly upon one of the independent claims discussed above. Accordingly, the dependent claims are asserted to be patentable over the applied art at least for the reasons set forth above with respect to independent claims 1, 20, and 35. Moreover, the dependent claims are asserted to recite additional novel and non-obvious limitations not present in the art of record.

For example, claim 2 recites that the transmitter is a CDMA transmitter and the plurality of channels are a plurality of CDMA channels. Accordingly, similar to claims 20 and 35 discussed above, the limitations of claim 2 provide beam forming control in the code domain. There is nothing in the disclosure of *Searle* to teach or suggest beam forming control achieved in the code domain.

Claim 8 recites that a longitudinal size of the variable size beams is a function of an amplitude differential of signals components provided to the transmit signals. In contrast, *Searle* teaches that “[a]ll attenuators in any one beam are set to the same value to give a new beam template across all frequencies,” see column 7, lines 18-20. Accordingly, a *prima facie* case of obviousness with respect to this claim has not been established.

Claim 14 recites transmit signals are selected in part based upon channel search data associated with receive signals. Similarly, claim 16 recites transmit signals are selected in part based upon measurements of signal interference ratio of receive signals. In rejecting these claims, the Office Action relies upon a portion of *Searle* teaching analysis of receive signals for selection of a receive signal. This disclosure is insufficient to meet the claims.

Claim 23 recites that the switch bank is a baseband receive switch bank. The Office Action relies upon Figures 6(a) and 6(b) of *Searle* to meet the claim. However, as discussed above with respect to claims 1 and 35, *Searle* expressly discloses RF switching, see column 6, lines 17-18. Accordingly, the rejection of record fails to properly establish obviousness under 35 U.S.C. § 103.

Claim 28 recites that the switch bank comprises a digital switch multiplexer. In rejecting this claim, the Office Action relies upon a portion of *Searle* teaching an amplifier select switch matrix. Initially, it is pointed out that the amplifier switch matrix of *Searle* appears to be associated with beams rather than CDMA channels as required by the claim, and therefore it is not understood how the configuration of this switch matrix could be determinative to the present claim. Additionally, the disclosure is completely silent with respect to the switch matrix being a digital switch. Indeed, in the rejection of claim 11, reciting conversion of signals between analog and digital, the Examiner concedes that *Searle* does not teach conversion of digital signals to analog. As such, it is not understood how the disclosure of *Searle* can be relied upon to teach a digital switch multiplexer as recited in claim 28.

Claim 43 recites that a longitudinal size of the variable size beams is a function of an amplitude differential of signals components of the transmit signals. As discussed above with respect to claim 8, *Searle* teaches that “[a]ll attenuators in any one beam are set to the same value to give a new beam template across all frequencies,” see column 7, lines 18-20.

Accordingly, a *prima facie* case of obviousness with respect to this claim has not been established.

**2. The Rejection Based Upon *Searle* in View of *Mahmoudi* and *Tsoulos* and Further in View of *Dent***

In rejecting claims 11, 12, 33, 34, 44, and 45 over *Searle* in view of *Mahmoudi* and *Tsoulos* and further in view of *Dent*, the Office Action fails to set forth proper motivation as is required under M.P.E.P. § 706.02(j). For example, in rejecting claims 11, 33, 44, and 45, the Office Action provides that “*Dent* discloses going between the digital and analog domain as is well known in the art and as shown in figure 10 before sending a signal in general to an antenna array [and thus] *Dent* cures the deficiency and shows that it is well known in the art to transport signals over a radio medium in analog form,” the Office Action at page 5. The foregoing statement of motivation is merely a statement that the reference can be modified, and does not state any desirability for making the modification. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination, see M.P.E.P. § 2143.01 citing *In re Mills*, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). Thus, the motivation provided by the Examiner is improper, as the motivation must establish the desirability for making the modification.

In rejecting claims 12, 34, 44, and 45, the Office Action provides that “motivation [to convert transmitted signals from an intermediate to a radio frequency] is one of design choice,” the Office Action at page 5. Applicants respectfully assert that the Examiner is relying on unpermissible hindsight in order to piece together the elements of the claims based on knowledge gleaned from Applicant’s disclosure. The Examiner concedes that *Searle*, *Mahmoudi* and *Tsoulos* are silent with respect to converting transmitted signals from an intermediate to a radio frequency, but asserts that *Dent* discloses that IF and RF conversions are a matter of design choice. Although the disclosure of *Dent* may teach conversion between IF and RF signals in an embodiment thereof, there is nothing in the disclosure of *Dent* to have suggested modification of the otherwise operational system of *Searle* to implement such IF and RF conversion. Applicants assert that without the teachings of Applicant’s disclosure one of ordinary skill in the art would not find the invention of claims 12, 33, and 44 obvious over *Searle* in view of *Mahmoudi* and *Tsoulos* in further view of *Dent*.

**III. Summary**

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Our check in the amount of \$420.00 to cover the two month extension of time fee is enclosed. The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 06-2380, under Order No. 65948/P019CP1/10400655 from which the undersigned is authorized to draw.

Dated: February 17, 2004

Respectfully submitted,

By R. Ross Viguet

R. Ross Viguet

Registration No.: 42,203

FULBRIGHT & JAWORSKI L.L.P.

2200 Ross Avenue, Suite 2800

Dallas, Texas 75201-2784

(214) 855-8000

(214) 855-8200 (Fax)

Attorney for Applicant